PROGRAM GOALS

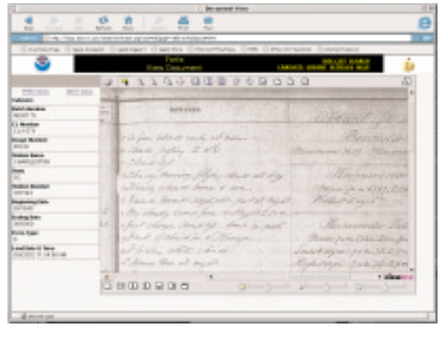
The National Oceanic and Atmospheric Administration's (NOAA) Climate Database Modernization Program (CDMP) has a very simple goal: to make major climate databases available via the world wide web.

NOAA Headquarters – Silver Spring, Maryland

As the CDMP matured in its third year of existence, the program grew to include tasks involving five NOAA line offices. The program became international with data modernization efforts underway involving data from six African countries and one country in Central America. The amount of images available on-line reached 36 million records totaling over 3 terabytes of data. Modernization continued to involve the keying of observations; the imaging of original records whether on paper, microform, or photographs; the vectorizing of shorelines; and the digitizing of analog recordings.

The program is managed by the National Environmental Satellite, Data, and Information Service's National Climatic Data Center (NCDC) located in Asheville, NC.

Amount of records available on-line
(IN MILLIONS)



NOAA'S RICH HERITAGE OF CLIMATE DATA

The National Oceanic and Atmospheric Administration holds a vast amount of varied and unique climate data. Much of these data remain on paper or microform and are difficult to access. This year, CDMP funded several NOAA projects that will enable these data to become easily accessible. CDMP contractors worked to modernize a selection of logbooks and photographs documenting whales, dolphins and porpoise populations for the National Marine Fisheries Service. The National Ocean Service has several tasks underway to make shoreline data available to the Geographic Information Systems' (GIS) world, to digitize sea surface temperatures and densities, and image historical nautical charts. The National Weather Service worked with African and Central American countries to image their meteorological holdings, with CDMP contractors undertaking the digitizing of the observations. A task to key marine meteorological observations taken by Japanese whaling fleets during the early 1900's was completed for the Office of Oceanic and Atmospheric Research during the year.

CDMP is supporting the National Weather Service in working with African and Central American countries to digitize their records.

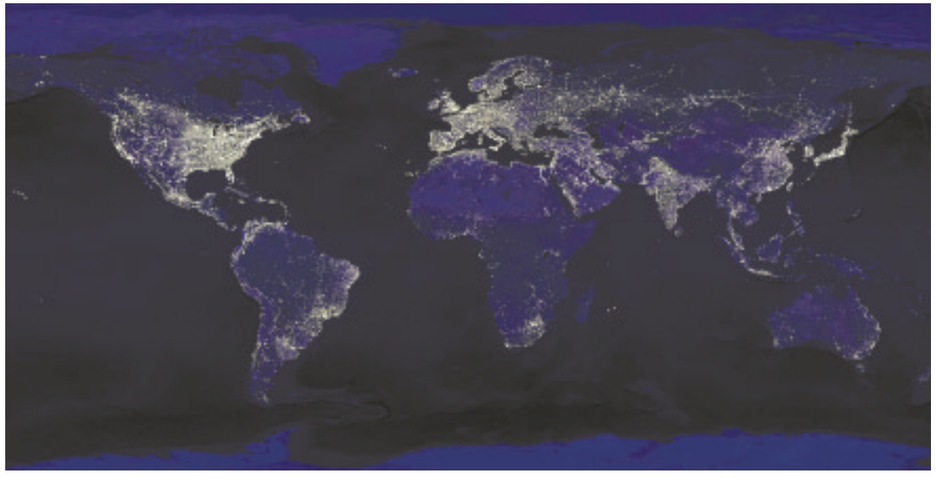
The National Weather Service is currently working with six African countries to image their meteorological holdings.

The National Environmental Satellite, Data, and Information Service's three data centers (National Oceanographic Data Center, National Geophysical Data Center and National Climatic Data Center) have dozens of tasks underway. These range from imaging historical photographs of Alaskan glaciers, to keying weather observations from the Forts collection (1820-1895), to imaging Defense Meteorological Satellite Program (DMSP) film. The NOAA library brought the *Daily Weather Map* series and the *Monthly Weather Review* to the web through the imaging of these valuable historical publications.

Providing access to glacier photographs will allow researchers to document changes over time.

Much of the weather data taken by the founding fathers of this country (Washington, Jefferson and Franklin) were archived in original manuscripts, then microfilmed and stored at the National Archive and Records Administration (NARA). Those records available from NARA on microfilm have been imaged and placed on-line. Original records held by NARA will be imaged at their site and then added to the growing collection of historical data that make up the NOAA archive.

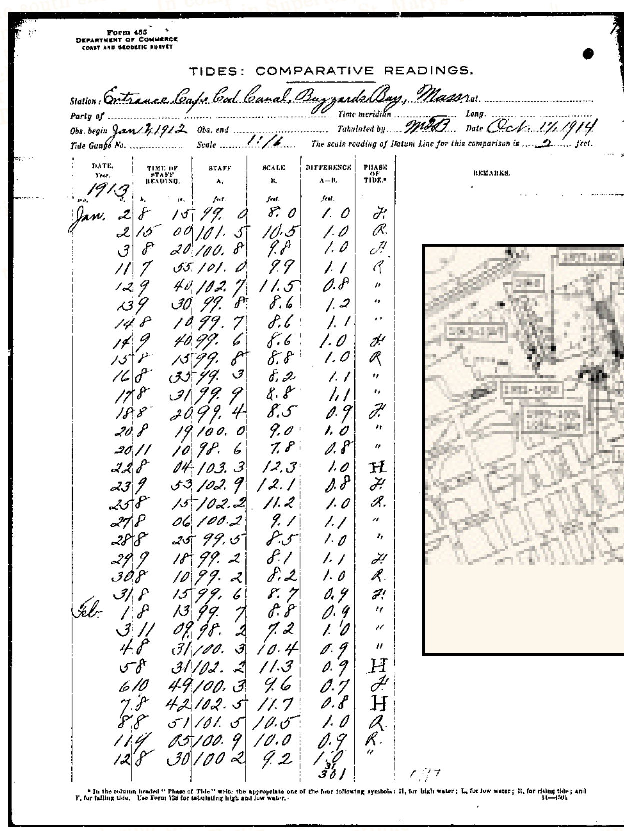
Defense Meteorological Satellite Program images can document natural and manmade phenomena over time.



NORTHEASTERN U.S. IN THE SPOTLIGHT

One of the greatest contributions of the CDMP is compiling a variety of climatological data for easy access and increased utilization. Using the Northeastern United States as an example, it is quite evident that climate is much more than a few temperatures and precipitation recordings in a few sites. The climate of the Northeast can be described through the integration of many reports and observations involving ice thickness, tides, water temperature, shoreline values, nautical charts, and air temperature. Through the efforts of CDMP, data dating back to the American colonies is now accessible from the archives to the public and the researcher alike.

Decade by decade the climate history of the region unfolds. The great storms of the past mingle with the mundane fair weather reports. Observations of daily temperature and precipitation taken by such famous Americans as George Washington and Thomas Jefferson are just as accessible as observations taken by NOAA's radars and automated instruments.



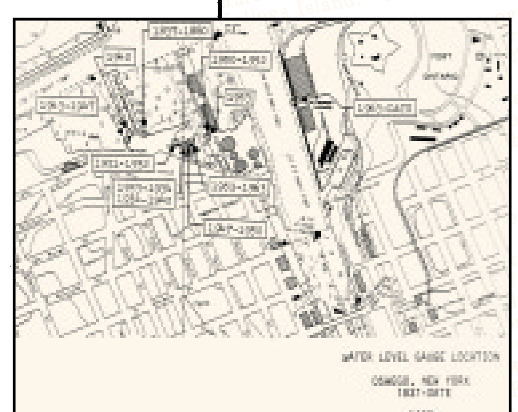
Form 455
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

TIDES: COMPARATIVE READINGS.

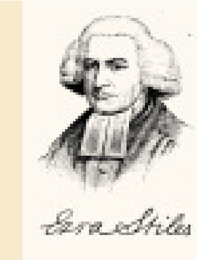
Station: Entrance Cape Cod Canal, Buzzards Bay, Mass. Lat.
Party of ... Time meridian ... Long.
Obs. begin Jan. 2, 1912 Obs. end ... Tabulated by M.B. Date Oct. 17, 1914
Tide Gauge No. ... Scale 1:16 The scale reading of Datum Line for this comparison is 2 feet.

Date, 1913		h.	Time of staff reading (m.)	Staff A. (feet)	Scale B. (feet)	Difference A–B. (feet)	Phase of tide.*	Remarks.
Jan.	2	8	15	99.0	8.0	1.0	F.	
	2	15	00	101.5	10.5	1.0	R.	
	3	8	20	100.8	9.8	1.0	F.	
	11	7	55	101.0	9.9	1.1	R	
	12	9	40	102.7	11.5	0.8	"	
	13	9	30	99.8	8.6	1.2	"	
	14	8	10	99.7	8.6	1.1	"	
	14	9	40	99.6	8.6	1.0	F	
	15	8	15	99.8	8.8	1.0	R	
	16	8	35	99.3	8.2	1.1	"	
	17	8	31	99.9	8.8	1.1	"	
	18	8	20	99.4	8.5	0.9	F.	
	20	8	19	100.0	9.0	1.0	"	
	20	11	10	98.6	7.8	0.8	"	
	22	8	04	103.3	12.3	1.0	H	
	23	9	53	102.9	12.1	0.8	F	
	25	8	15	102.2	11.2	1.0	R.	
	27	8	06	100.2	9.1	1.1	"	
	28	8	25	99.5	8.5	1.0	"	
	29	9	18	99.2	8.1	1.1	F	
	30	8	10	99.2	8.2	1.0	R.	
	31	8	15	99.6	8.7	0.9	F.	
Feb.	1	8	13	99.7	8.8	0.9	"	
	3	11	09	98.2	7.2	1.0	"	
	4	8	31	100.3	10.4	0.9	"	
	5	8	31	102.2	11.3	0.9	H	
	6	10	49	100.3	9.6	0.7	F	
	7	8	42	102.5	11.7	0.8	H	
	8	8	51	101.5	10.5	1.0	R	
	11	9	05	100.9	10.0	0.9	R.	
	12	8	30	100.2	9.2	1.0	"	
						31 / 30.1		

* In the column headed "Phase of Tide" write the appropriate one of the four following symbols: H, for high water; L, for low water; R, for rising tide; and F, for falling tide. Use Form 138 for tabulating high and low water.



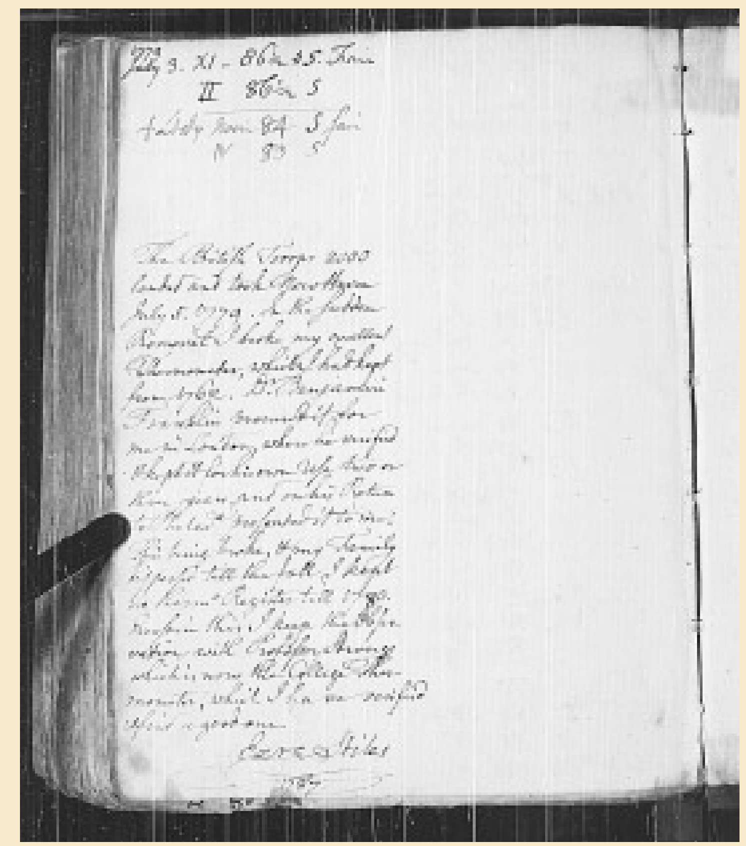
NOAA holds a vast amount of water level data.



Preserving the Past:

Archives from the Ludlum Collection

One of the most important archiving tasks currently underway is that of the Ludlum Collection. David M. Ludlum, meteorologist and author, was instrumental in documenting early American climate conditions. The collection contains many weather observations by famous Americans such as George Washington and Thomas Jefferson. Below is an entry from the personal journal of Ezra Stiles, President of Yale University from 1778-1795.



The British Troops 2000 landed and took New Haven July 5, 1779. In the sudden removal I broke my excellent thermometer, which I had kept from 1762. Dr. Benjamin Franklin procured it for me in London, where he verified and kept it for his own use two or three years, and on his return to Philadelphia presented it to me. This being broke, and my family dispersed till the fall, I kept no therm or register till 1780. Ever since this, I keep the observation, with Professor Strong, which is now the College Thermometer, which I have verified and find a good one. — EZRA STILES, 1787

CDMP is all about teamwork and partners.

PARTNERS AND PEOPLE

The Climate Database Modernization Program could not exist without the extraordinary efforts of people within NOAA and the people in the private sector that do the keying, imaging, and database development. The three prime contractors for CDMP include Information Manufacturing Corporation, Rocket Center, West Virginia; Image Entry, Inc., London, Kentucky; and Lason Systems, Inc., Beltsville, Maryland. The staffs of the Regional Climate Centers also play a major role in assisting with data discovery and quality control, as do the staff members of the STG Corporation who are working along side the NCDC staff in Asheville, North Carolina.

In July, NOAA senior management, along with Congressman Harold Rogers, participated in the grand opening ceremonies for Image Entry's new facility in Jenkins, Kentucky. In October, all three prime CDMP contractors participated in the first CDMP NOAA Day event that was hosted by Information Manufacturing Corporation (IMC) at their Rocket Center, West Virginia, facility. This event gave NOAA's management the opportunity to learn about the NOAA-wide achievements of the CDMP. IMC also officially dedicated their on-line image system, Web Search Store Retrieve Display (WSSRD), as part of the NOAA Day activities.

In 2002, the CDMP held the second annual Data Access Workshop as a forum for information and experience exchange between the various NOAA task leaders. The workshop, held at the Coastal Services Center, in Charleston, South Carolina, also allowed for the presentation of new proposals by NOAA agencies for the upcoming year's program. A digitizing workshop was also held this year in Asheville, North Carolina. The purpose of the workshop was to exchange experiences and ideas to develop the best system for automatically digitizing precipitation analog charts. This workshop brought together CDMP contractors, participants from several NOAA agencies, as well as experts from Hungary, Belize, Barbados, and Costa Rica.

Experts from around the world gather to discuss automated techniques to digitize analog charts.

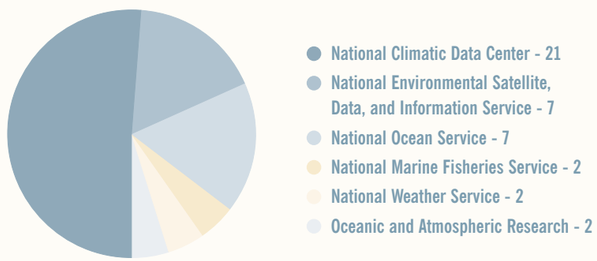
The paper archive of meteorological records at the National Climatic Data Center numbers over 100 million pages.

Extreme caution must be taken in the preparation of film before it can be imaged.

IN CONCLUSION

In its quest to make major climate databases available via the world wide web, the CDMP made great strides this year. From undertaking modernization efforts for five NOAA line offices, to beginning work on an international scale, a total of more than 40 tasks were underway during the year. Data were digitized at rates unthinkable a few years ago. However, some holdings of the various NOAA offices remain virtually untouched. Much remains to be accomplished to truly bring the archives to full accessibility on the world wide web.

TASKS BY NOAA ORGANIZATION



WEB ADDRESSES FOR NOAA ORGANIZATIONS:

National Oceanic & Atmospheric Administration (NOAA):
www.noaa.gov

National Environmental Satellite, Data, and Information Service (NESDIS):
www.nesdis.noaa.gov

National Climatic Data Center (NCDC):
www.ncdc.noaa.gov

National Geophysical Data Center (NGDC):
www.ngdc.noaa.gov

National Oceanographic Data Center (NODC):
www.nodc.noaa.gov

National Ocean Service (NOS):
www.nos.noaa.gov

National Marine Fisheries Service (NMFS):
www.nmfs.noaa.gov

PRODUCT SPECIFIC URLS:

NGDC/Defense Meteorological Satellite Program (DMSP):
http://www.ngdc.noaa.gov/dmsp/

NOS/Coastal Services Center Shoreline Mapping:
http://www.csc.noaa.gov/shoreline/overview.html

NOS Products/Data:
http://mapindex.nos.noaa.gov

NOAA Central Library, Climate Data Imaging Project:
http://docs.lib.noaa.gov/rescue/data_rescue_home.html

Shown on cover is historical weather map from October 15, 1890.